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*For two-letter codes and other abbreviations, refer to the "Guid-  
ance Notes on Codes and Abbreviations" appearing at the begin-  
ning of each regular issue of the PCT Gazette.*

(54) Title: **VMP-LIKE SEQUENCES OF PATHOGENIC BORRELIA SPECIES AND STRAINS**

(57) Abstract: The present invention relates to DNA sequences encoding Vmp-like polypeptides of pathogenic *Borrelia*, the use of the DNA sequences in recombinant vectors to express polypeptides, the encoded amino acid sequences, application of the DNA and amino acid sequences to the production of polypeptides as antigens for immunoprophylaxis, immunotherapy, and immunodiagnosis. Also disclosed are the use of the nucleic acid sequences as probes or primers for the detection of organisms causing Lyme disease, relapsing fever, or related disorders, and kits designed to facilitate methods of using the described polypeptides, DNA segments and antibodies.



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# INTERNATIONAL SEARCH REPORT

International application No.

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## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : C07H 21/04, 21/02; A61K 31/70, 49/00, 39/00; A01N 43/04  
US CL : 424/9.1, 9.2, 185.1, 190.1; 536/23.1, 23.7, 24.3; 435/6, 7.1, 471; 514/44; 530/300, 350

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## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/9.1, 9.2, 185.1, 190.1; 536/23.1, 23.7, 24.3; 435/6, 7.1, 471; 514/44; 530/300, 350

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)  
BIOSIS, CABA, CAPLUS, EMBASE, JAPIO, LIFESCI, MEDLINE, SCISEARCH, USPATFULL

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6,437,116 B1 (NORRIS et al) 20 August 2002, entire reference.	1-94
Y,P	US 6,610,301 B1 (MOTZ et al) 26 August 2003, entire reference.	1-94

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

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